Who, What, When, Why and Above All – Whereto?

The Coordination of the Offshore Text Field Research

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Biologists, geologists, ornithologists, material testers, psychologists, economists, mechanical engineers, and not forgetting electrical engineers, engineers, structural engineers, logisticians and many other professions. What for some observers might at first glance appear to be a "research supermarket" with a massive range of products, in fact reflects the diversity of those involved in the RAVE research initiative. The Alpha Ventus test field provided the start signal for the development of offshore wind energy in Germany – and also for a large number of research projects. While Project Management Jülich (PtJ) was entrusted with the administrative management of the project, the responsibility for the coordination of the research activities lies with Fraunhofer IWES.

The research coordination involves a great deal more than just organising a few boat trips out to the wind farm for the research organisations. It also includes the planning and coordination of the measurement operations; Alpha Ventus has been fitted out with extensive measurement technology in order to be able to supply all the research projects involved with the detailed data they need. Whether it be verification and modelling of turbines and components, grid integration, further development of lidar wind measuring methods, recording the loads on foundation structures, measurement of the wind farm construction and operation noise or the accompanying ecological research, the job has been to avoid duplication of measurements or that other measurements are omitted. In other words what is called for is coordination of the implementation and shared data management. The most important job for the coordination project was initially to create the structure of a joint programme for all research sections and organisations, and to make it available to them all. The tasks also included the preparation, organisation and staging of workshops and specialist conferences (◘ Fig. 2.1).

The official launch of the enterprise was on 8 May 2008, when the Federal Environment Ministry (BMU) invited over 200 experts from the fields of research, science, government and wind industry to meet in Berlin for the kick-off event for RAVE – Research at Alpha Ventus. This gathering gave all those involved a broad overview of the planned research activities and more. "The Alpha Ventus research project and its findings will in the long term contribute to reducing the costs of offshore wind energy", summed up Professor Jürgen Schmid, then president of the European Academy of Wind Energy EAWE and chair of the Institute for Solar Energy Supply Technology (ISET) in Kassel.

At the time of the RAVE launch event, onshore wind turbines produced 22,000 megawatts, slightly more than six per cent of total power production. Government plans envisaged another, more far-reaching target, which was to incorporate the massive wind energy potential in the North and Baltic Seas into the future energy supply structures and achieve 15 % of the total power consumption from offshore wind by 2030. Alpha ventus was to be the high-profile "door opener" for the use of offshore wind energy; the Federal Environment Ministry provided around 50 million euros for the accompanying research in the test field over a period of five years. In 2007, immediately prior to the main event, 14 projects had already been approved with a total funding volume of over 16 million euros. Around 20 more projects were to follow (◘ Fig. 2.2).

In order to be able to make use of synergies in the research projects and thus increase the quality of the results, Fraunhofer IWES developed a concept for the cooperation between the various projects in the test field which was then coordinated at the regular meetings of the organisations involved. The main work packages in the coordination project involved the organisational and scientific networking of the individual projects; nobody should be "completely detached and researching alone". This meant regular meetings for reporting on partial results and difficulties in implementing projects. Interest and conflict mediation was naturally also in demand, because not everybody could go out to sea at the

Fig. 2.1 Research results from Alpha Ventus, presented at the International Offshore Wind R&D Conference 2015 in Bremerhaven. © Fraunhofer IWES

same time and at any time. The coordination project eventually involved over 30 projects, as well as over 50 research organisations, institutes and facilities. National and international networking was also part of the job, because offshore wind is not just a German domestic issue.

The coordination project has also involved the planning and realisation of specialist workshops and major scientific conferences like the RAVE Conferences in 2012 and 2015 (Offshore Wind R&D Conference). And it is responsible for all the PR work; not just answering questions about the test field, but also informing the industry, government, project sponsors, the scientific community and other interested parties about the research in the test field and about the latest trends and tendencies to do with offshore wind energy use. A job it continues to do to this day.

2.1 Sources

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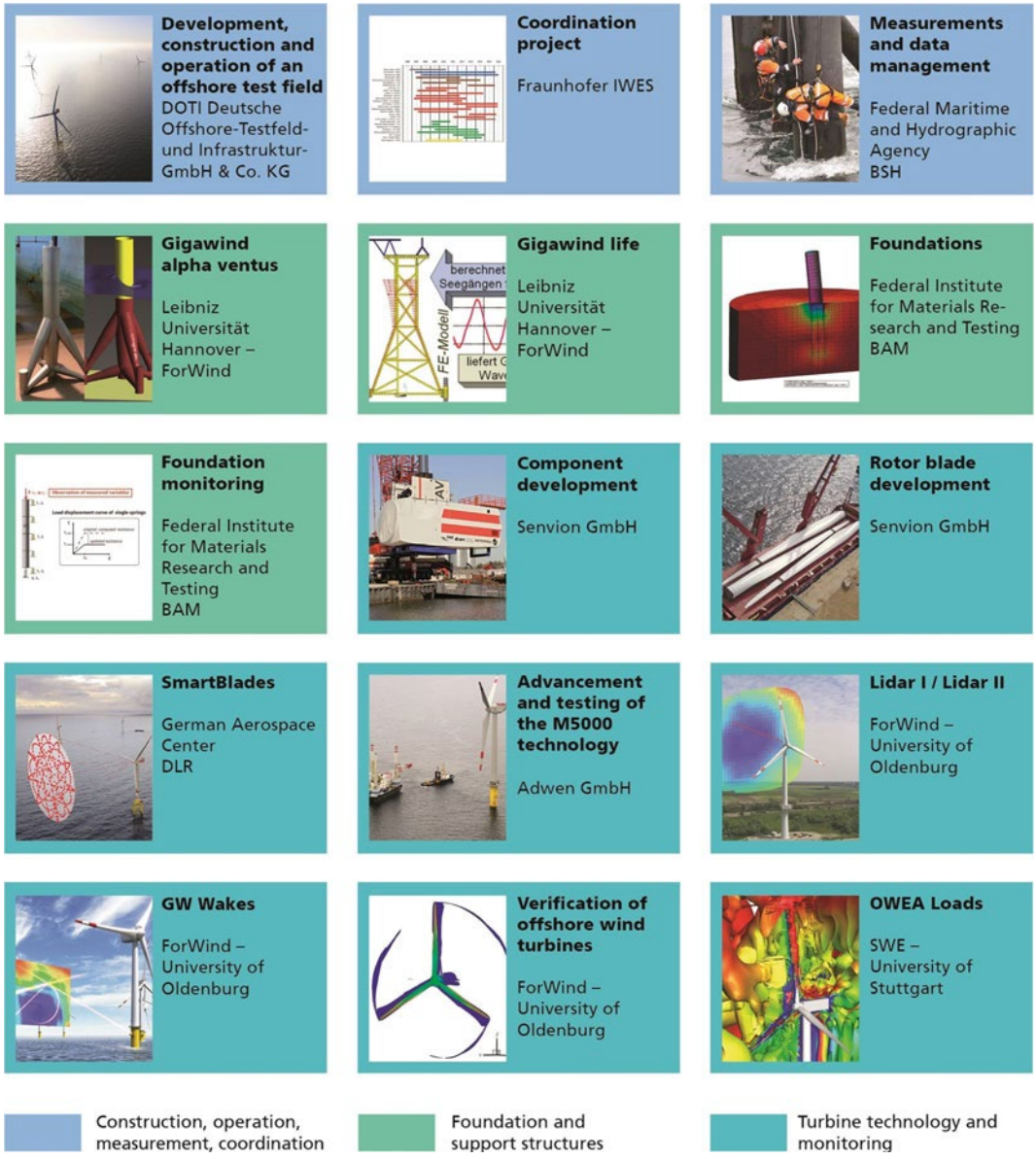

Fig. 2.2 Overview of the RAVE projects – the 27 research projects listed correspond to the chapter sequence in this book. © Fraunhofer IWES

Fig. 2.2 (*continued*)